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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,734	09/26/2003	Hsiung-Kuang Tsai	Q77679	6756
23373	7590	07/23/2004	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			STULTZ, JESSICA T	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 07/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/670,734	<b>Applicant(s)</b> TSAI, HSIUNG-KUANG 	
	<b>Examiner</b> Jessica T Stultz	<b>Art Unit</b> 2873	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.  
     4a) Of the above claim(s) 13-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                           |                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                      | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>0903</u> . | 6) <input type="checkbox"/> Other: ____.                                                |

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-12, drawn to color changeable pixel, classified in class 359, subclass 290.
- II. Claim 13-24, drawn to an optical interference color planar display, classified in class 359, subclass 242.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the optical interference color planar display can have a color pixel wherein the operating plate is not settled in parallel with the first plate or wherein the second plate is not settled between the first plate and the operating plate in parallel. The subcombination has separate utility such as being used in a display without control and driver circuits.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for any one group is not required for any other group restriction for examination purposes as indicated is proper.

During a telephone conversation with Alan Kasper on June 30, 2004 a provisional election was made without traverse to prosecute the invention of Group 1, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### *Specification*

The specification is objected to as failing to comply with 37 CFR 1.84(p)(5) because the drawings include the following reference character(s) not mentioned in the description: "608" and "612". Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the specification will not be held in abeyance.

***Claim Objections***

Claim 1 recites the limitation "said third plate", however there is no previous mention of a "third" plate in the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, the assumed meaning is "said operating plate".

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-3, 5, and 7-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Miles US 6,650,455 (herein referred to as Miles '455).

Regarding claim 1, Miles '455 discloses a color changeable pixel (Column 6, lines 37-67 and Column 9, lines 3-55, wherein an array of the pixels "400" are shown in Figure 4A and a single color changeable pixel is shown in Figure 5A), comprising: a first plate (Column 9, lines 3-55, wherein the first plate is mirror "508", Figures 5A and 5B); an operating plate (Column 9, lines 3-55, wherein the operating plate is film "504" and electrode "502", Figures 5A and 5B), wherein the operating plate is settled in parallel with the first plate (Shown in Figures 5A and 5B); a second plate (Column 9, lines 3-55, wherein the second plate is membrane/mirror "506", Figures 5A and 5B), the second plate settled between the first plate and the operating plate in parallel and forming a cavity with the first plate (Shown in Figures 5A and 5B, wherein the cavity is "505"), wherein an incident light from one side of the first plate is modulated and only

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specific frequency light reflects by second plate (Column 9, line 3-55, wherein the structure reflects certain frequencies of light) and the second plate shifts by the voltage added on the operating plate to change the distance between the first plate and the second plate to change the frequency of the reflected light (Column 9, lines 3-55, wherein the change in length of the cavity “505”, i.e. vertical movement of membrane mirror “506”, is determined by voltage applied to the electrode “502”, which changes the optical reflective properties of the structure).

Regarding claims 2-3, Miles ‘455 further discloses that the first plate comprises: a transparent conductive substrate (Column 9, lines 3-55, wherein the mirror “508” is located on semi-transparent, i.e. at least partly absorbing, superstructure “510”, Figures 5A and 5B); an absorption layer; and a dielectric layer (Column 10, lines 6-51, wherein the substrate is covered by a thin film absorber stack “704”, made of a dielectric layer, conductive layer, and insulator layer, Figures 7A and 7B).

Regarding claim 5, Miles ‘455 further discloses that the absorption layer is made from metal (Column 9, lines 3-55, wherein the mirror “508” is made of chromium, Figures 5A and 5B).

Regarding claim 7, Miles ‘455 further discloses that the first and second plates are metal mirrors (Column 9, lines 3-55, wherein the first plate “508” is a chromium mirror and the second plate “506” is an aluminum mirror, Figures 5A and 5B).

Regarding claim 8, Miles ‘455 further discloses that the second plate is a deformable plate (Column 9, lines 3-55, wherein the membrane mirror “506” is deformable, Figures 5A and 5B).

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Regarding claim 9, Miles '455 further discloses that the second plate is a moveable plate (Column 9, lines 3-65, wherein the membrane mirror "506" is movable and wherein the mirror "608" is moveable, Figures 5A, 5B, 6A, and 6B).

Regarding claim 10, Miles '455 further discloses that the second plate at least comprises a dense material (Column 9, lines 3-55, wherein the membrane mirror "506" is made of thick aluminum, i.e. a dense material, Figure 5A and 5B) or semi-transparent (Column 10, lines 13-51, wherein the membranes "702" is made of semi-transparent aluminum, Figures 7A and 7B).

Regarding claim 11, Miles '455 further discloses that the semi-transparent material is a thin metal (Column 10, lines 13-51, wherein the membranes "702" is made of thin metal films, Figures 7A and 7B).

Regarding claim 12, Miles '455 further discloses a plurality of supports positioned between the first and second plate and the second plate and the operating plate (Column 9, lines 3-65, wherein the first supports are the pieces of superstructure "510" which are between the first plate "508" and second plate "506" and the second supports are the pieces of membrane "506" that fall between membrane "506" and operating plate "504" and "502", Figures 5A and 5B).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Miles '455 in view of Huibers.

Regarding claims 4 and 6, Miles '455 discloses a pixel as disclosed above, but does not specifically disclose that the dielectric layer is made of silicon oxide, silicon nitride or metal oxide or that the substrate is ITO or IZO. Huibers teaches of a pixel cell (Column 6, line 66-Column 7, line 5, wherein the pixel cells are shown in Figures 2A-F) wherein silicon nitride is used as a dielectric layer for the purpose of providing structural support for a mirrored surface (Column 9, lines 37-46, wherein a layer of silicon nitride is added to the mirror surface, Figure 2F) and that a layer of ITO is added to the substrate for the purpose of providing a transparent conductive substrate to move the mirrors toward the top substrate (Column 17, lines 5-17). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made for the pixel of Miles '455 to further include a dielectric layer made of silicon nitride and a substrate made of ITO since Huibers discloses a pixel cell wherein silicon nitride is used as a dielectric layer for the purpose of providing structural support for a mirrored surface and that a layer of ITO is added to the substrate for the purpose of providing a transparent conductive substrate to move the mirrors toward the top substrate.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miles 6,674,562 and Bloom et al are cited as having some similar structure to the claimed invention.

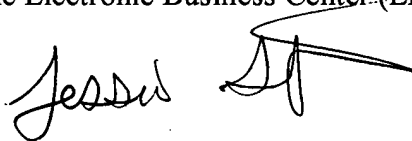
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica T Stultz whose telephone number is (571) 272-2339. The examiner can normally be reached on M-F 8-4:30.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Jessica Stultz", followed by a stylized flourish.

Jessica Stultz  
Patent Examiner  
AU 2873  
July 16, 2004

A handwritten signature in black ink, appearing to read "Jordan Schwartz", with a large loop at the end.

**JORDAN SCHWARTZ**  
**PRIMARY EXAMINER**